

## PATENT COOPERATION TREATY

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner  
 US Department of Commerce  
 United States Patent and Trademark  
 Office, PCT  
 2011 South Clark Place Room  
 CP2/5C24  
 Arlington, VA 22202  
 ETATS-UNIS D'AMERIQUE  
 in its capacity as elected Office

Date of mailing (day/month/year) 23 April 2001 (23.04.01)	
International application No. PCT/IT00/00278	Applicant's or agent's file reference 073/00
International filing date (day/month/year) 05 July 2000 (05.07.00)	Priority date (day/month/year) 08 July 1999 (08.07.99)
Applicant ZORZAN, Ivano	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:  
 08 January 2001 (08.01.01)

☐ in a notice effecting later election filed with the International Bureau on:  
 \_\_\_\_\_

2. The election ☒ was  
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer Pascal Piriou Telephone No.: (41-22) 338.83.38
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PATENT COOPERATION TREATY

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## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 073/00	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/IT00/00278	International filing date (day/month/year) 05/07/2000	Priority date (day/month/year) 08/07/1999
International Patent Classification (IPC) or national classification and IPC G03D15/00		
Applicant NORTECH ITALIA SRL et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 8 sheets, including this cover sheet.

- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 12 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand  08/02/2001	Date of completion of this report  28.09.2001
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer  Tomezzoli, G  Telephone No. +49 89 2399 2453 

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/IT00/00278

## I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, pages:**

1-12 as received on 13/08/2001 with letter of 09/08/2001

**Claims, No.:**

1-10 as originally filed

**Drawings, sheets:**

1/5-5/5 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/IT00/00278

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes:	Claims	1-10
	No:	Claims	
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-10
Industrial applicability (IA)	Yes:	Claims	1-10
	No:	Claims	

2. Citations and explanations  
**see separate sheet**

**VII. Certain defects in the international application**

The following defects in the form or contents of the international application have been noted:  
**see separate sheet**

**Re Item V**

Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. In this International Preliminary Examination Report reference is made to the following documents:  
D1: EP-A-0 577 121;  
D2: FR-A-2 724 739.
2. Independent Claim 1 is not inventive (Article 33(3) PCT).
  - 2.1. In fact, document D1 (cf. fig. 1 and the relevant description portion), which appears to represent the closest state of the art for this application, already discloses an automatic machine for dispensing photographic products and the like (cf. col. 4, lines 9-18) comprising all the features listed in the preamble of Claim 1.
  - 2.2. The attention of the applicant is drawn to the fact that according to the broad meaning of the expression "photographic products and the like" the videocassettes and the batteries dispensed by the automatic machine of D1 (cf. col. 4, lines 9-18) represent well photographic products and the like. Consequently, the automatic machine of D1 (cf. fig. 1) represents well an automatic machine for dispensing photographic products and the like as defined in Claim 1.
  - 2.3. The automatic machine of Claim 1 differs from the automatic machine of D1 in that it further comprises:
    - a) a device for collecting at least a roll of film to be developed, as well as
    - b) a device for delivering a coded carrier to the user, in particular a magnetic or microchip card or a card provided of bar codes, whereby a code to be associated to the roll to be introduced within said dispensing machine is bound to said carrier.

However, the devices a), b) are well known in the art as clear from D2 (cf. page 6, line 20 to page 7, line 11 figs. 1, 2), In fact, D2 already discloses:  
a device (cf. fig. 2) for collecting at least a roll of film to be developed, as well as  
a device (cf. page 7, lines 6-7 and fig. 1, no. 8) for delivering a coded carrier (cf.

page 7, lines 6-11) to the user, in particular a magnetic (cf. page 7, lines 6-11) or microchip card or a card provided of bar codes, whereby a code to be associated to the roll to be introduced within said dispensing machine is bound to said carrier (cf. page 7, lines 6-11).

It is observed that, although classified in different technical fields, the machine of D1 (cf. fig. 1) and the devices of D2 (cf. figs. 1, 2) belong to the same broad technical field of the automatic machines for dispensing photographic products and the like which is well in the normal knowledge of a person skilled in the art of the automatic machines for dispensing photographic products and the like.

Consequently, said skilled person considers it as an obvious possibility to add the devices a), b) known from D2 (cf. figs. 1, 2) to the automatic machine of D1 (cf. fig. 1) in the attempt, normal in the art of the of automatic machines for dispensing photographic products and the like, to increase the profits.

- 2.4. Consequently, the automatic machine of Claim 1 cannot be considered as inventive (Article 33(3) PCT) because it represents merely in the juxtaposition or association of machines or devices known from D1 and D2, functioning in their normal way and not producing any non-obvious working inter-relationship.
3. In the light of the wording of Claim 1, the following is observed:
  - the machine of D1 (cf. fig. 1) has not very little in common with the machine of the present application, in fact, as already said above (cf. point 2.1) it comprises all the features mentioned in the preamble of Claim 1;
  - the machine of D1 (cf. fig. 1), as already said above (cf. point 2.2), specifically aims to dispense photographic products and the like as defined in Claim 1;
  - the machine of D1 (cf. fig. 1) does not provide the possibility to receive items with characteristics to be recorded and classified, and depending on these characteristics to order such items in a magazine, but these actions are performed by the devices of D2 (cf. figs. 1, 2) which, as already said above (cf. points 2.3, 2.4), obviously can be juxtaposed to the machine of D1 (cf. fig. 1);
  - Claim 1 does not define that the devices mentioned in the characterising portion should be located inside the same container and that share the same at least a magazine;

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

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International application No. PCT/IT00/00278

- photographic material and the like , as already said above (cf. point 2.2), are mentioned in the list of materials reported in D1 (cf. col. 4, lines 9-18);
- D1 (cf. col. 4, lines 9-18 and fig. 1) specifically discloses an automatic machine having technical effects, purposes and intended use similar to those of the claimed automatic machine;
- the further functions performed by the claimed automatic machine with respect to the automatic machine of D1 are performed by the devices of D2 (cf. figs. 1, 2) which, as already said above (cf. points 2.3, 2.4), obviously can be juxtaposed to the automatic machine of D1;
- the device b) of D2 (cf. page 7, lines 6-11 and figs. 1, 2) directly associates a magnetic card including comprehensive information on the item received by the device, as defined in Claim 1;
- no information like number of copies, format requested or even the type of paper desired for printing is defined in Claim 1;
- no direct flow of information from the claimed machine and the installer is defined in Claim 1;
- as already said above a person skilled in the art of the automatic machines for dispensing photographic products and the like considers it as obvious to juxtapose or to add the devices a), b) known from D2 (cf. figs. 1, 2) to the automatic machine of D1 (cf. fig. 1) in the attempt, normal in the art of the of automatic machines for dispensing photographic products and the like, to increase the profits, in this respect no ex-post facto analysis can be identified;
- the automatic machine of D1 (cf. fig. 1) and the devices of D2 (cf. figs. 1, 2) constitute a common general knowledge for a person skilled in the art of the automatic machines for dispensing photographic products and the like and can be easily referenced to one another by said skilled person;
- as already said above (cf. points 2.3, 2.4) a said skilled person is obviously motivated to autonomously combine the machine of D1 (cf. fig. 1) and the devices of D2 (cf. figs. 1, 2), therefore, in this respect, again no ex-post facto analysis can be identified;
- said skilled person is allowed also to consult or to ask the advise of persons skilled in different technological arts in order to perform all the necessary actions for juxtaposing or adding the devices of D2 (cf. figs. 1, 2) to the machine of D1 (cf. fig. 1);
- none of the feature defined in Claim 1 permits to appreciate possible main

advantages, mentioned in the description of the present application, of the claimed automatic machine with respect to the juxtaposition of the machine of D1 (cf. fig. 1) and the devices of D2 (cf. figs. 1, 2).

4. Dependent Claims 2-10 do not appear to contain any additional subject-matter which, in combination with the subject-matter of any claim to which they refer, result in an inventive step (Article 33(3) PCT) because their restrictions on the automatic machine of Claim 1 appear well within the normal knowledge and capability of the skilled person.

In particular:

- devices according to Claim 2 are well within the normal knowledge of a person skilled in the art of the automatic machines for dispensing photographic products and the like;
- devices according to Claim 3 are directly suggested by D1 (cf. col. 4, lines 9-18);
- devices according to Claim 4 are well within the normal knowledge of said skilled person;
- boxes according to Claim 5 are directly suggested by D2 (cf. page 16, 1st complete para.);
- means according to Claim 6 are known from D1 (cf. col. 5, lines 40-42);
- means according to Claims 7, 8 are well within the normal knowledge of said skilled person;
- means according to Claim 9 are known from D1 (cf. fig. 1, "T");
- a rotating drum according to Claim 10 is well within the normal knowledge and capability of said skilled person and represents merely a trivial alternative to the magazine of D1 (cf. fig. 1, "M").

5. The industrial applicability (Article 33(4) PCT) of the subject-matter of Claims 1-10 is not objected to.

### **Re Item VII**

Certain defects in the international application

1. The reference of the "spirit of the invention" in the description (cf. page 11) is obscure. The subject-matter for which the protection is sought is defined by the



**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

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International application No. PCT/IT00/00278

claims (Rule 6.3 (a)(b) PCT). Therefore, said obscure reference had to be deleted.

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**AUTOMATIC MACHINE FOR DISPENSING PHOTOGRAPHIC ITEMS AND  
THE LIKE**

\* \* \* \* \*

5

The present invention relates to an automatic dispenser of photographic items and the like.

More particularly, the present invention relates to an automatic dispensing machine provided with means  
10 suitable for receiving from an user one or more rolls of film to be developed and printed, as well as with means for delivering the developed photographs, and with possible means for delivering to the user different kinds of photographic material, following to a payment that may  
15 be carried out in different ways.

The invention finds its main application in the field of manufacturing automatic dispensing machines.

**BACKGROUND ART**

Different types of automatic machines for dispensing  
20 articles of any kind are known in the art.

These machines are operated by means of tokens, banknotes, credit od debit cards, magnetic or electronic cards, etc.

These automatic dispensing machines, which can  
25 either be installed inside a room, or outside, are generally constituted by a metallic container inside of which there is a fixed or movable store having a plurality of seats or cavities, each housing a given article.

30 Each seat or cavity may normally be accessed to by opening suitable doors which are located on the front

part of said container.

The payment of a given amount (as mentioned, through coins, tokens, banknotes, electronic or magnetic cards etc.) allows an user to access to a given seat and to the  
5 article contained therein.

The articles contained within said automatic dispensing machines can be of the most different type, e.g. cigarettes, flowers, foodstuffs, drinks, videocassettes, audio or video records, sanitary items  
10 etc.

By way of example, european patent application No. EP-A-577121 describes an automatic device for dispensing audiovisual and digital record carriers.

Said device comprises a fixed magazine comprising a  
15 plurality of adjacent seats placed on respective rows and columns, each seat being suitable for housing a record carrier, at least an article handling unit for externally loading and unloading said articles through a slot, a device for reading an identifying label associated to  
20 each carrier, a device by means of which an user can select a given carrier, as well as an automatic payment means that, once activated, allows a carrier to be withdrawn from the device.

Said handling unit comprises a pair of carriages  
25 which are parallel to each other and movable along vertical guides, as well as a slider that is movable along a second horizontal guide connected to said carriages; a blocking element for handling the carriers is rigidly fixed to said slider.

30 Said blocking element comprises movable jaws and a device for automatically modifying the distance between

the jaws along a further guide.

The opening and closing operation of the doors, thus the access to the seats containing the carriers, is controlled by a suitable computer, that is on its turn  
5 connected to a device for identifying the user (i.e. through a magnetic card) and for carrying out the payment (i.e. through banknotes or credit card).

Other automatic machines with advance payment functions known in the art include a camera and a device  
10 for automatically developing and printing the photos snapped by said camera.

Following to the payment of a given amount, the user is photographed and, after some minutes, he/she receives from the machine one or more prints of the snapped photo.

15 The machine disclosed in FR-A-2724793 relates to an optimized automatic plant capable to develop and print a withdrawn film of photographs.

This machine appears to be very similar to other automatic machines which are well known in the art and  
20 which usually include a camera as well as a device to automatically develop and print the pictures snapped by said camera.

In these known machines, following to the payment of a given amount of money, the user is photographed and,  
25 after some minutes, he/she receives from the machine one or more prints of the snapped pictures.

In the case of the machine described in FR-A-2724793 there is no incorporated camera, but only a system able to receive the film to be developed and to return it  
30 after development following to the payment of a given amount of money.

The applicant is not aware of automatic dispensing machines which were able to withdraw from an user a roll of photos to be developed and deliver to said user, after a given period of time, printed photos according to sizes  
5 and number of copies which are selected by the user.

#### DESCRIPTION OF THE INVENTION

The present invention aims to provide a new kind of automatic dispensing machine that allows an user to directly deliver a roll of film to be developed and to  
10 successively withdraw printed photos in a size and in a number of copies that is determined by said user.

This is achieved by means of an automatic dispensing machine having the features disclosed in the main claim.

The dependent claims outline particularly  
15 advantageous forms of embodiment of the dispensing machine according to the invention.

The automatic dispensing machine according to the present invention comprises a container housing a series of seats which are suitable for receiving rolls of film  
20 to be developed, as well as at least a door, that is placed on the front part of the dispensing machine, through which an user can introduce one or more rolls to be developed and printed in the machine.

According to the invention, the dispensing machine  
25 comprises means suitable for univocally identifying the roll or rolls inserted in the machine by the user, means for associating said roll or rolls to one or more of said seats, as well as means for displacing said roll or rolls towards its/their associated seat or seats.

30 Furthermore, the dispensing machine comprises data computing, storing and displaying means allowing a

skilled operator who withdraws the rolls from predetermined seats, to reintroduce the printed photos within the same seats in order to allow the user who had required the developing and printing service to  
5 successively withdraw the photos.

According to a particularly advantageous form of embodiment of the invention, the automatic dispensing machine comprises a suitable control software, a data inputting keyboard and a suitable display by means of  
10 which the user can input a series of possibly pre-selected requests, such as for instance the number of copies to be printed and/or their size.

Furthermore, the dispensing machine can be provided with means both for issuing a card including the user's  
15 identifying data, and for reading said card if it is already available.

According to a further advantageous form of embodiment of the invention, the automatic dispensing machine comprises a magazine housing a series of items  
20 which can be selected by the user, as well as means for dispensing said items to the user after a given amount has been paid; for example, said items can be constituted by various material such as new rolls of film, audio or video cassettes, batteries, disposable cameras, etc.

25 The latter form of embodiment appears to be extremely advantageous from the point of view of the user's convenience, since the machine can in practice dispense all the services of a photograph's shop at any time, in particular beyond the normal shop closing time.

30 This kind of dispensing machine can be installed anywhere, thereby allowing a series of selling points to

be created and widening the selling network of a given commercial business.

#### ILLUSTRATION OF DRAWINGS

Other features and advantages of the invention will become apparent by reading the following description of a form of embodiment of the invention, given as a non-limiting example, with the help of the drawings illustrated in the attached sheets, in which:

- fig. 1 shows a schematical perspective exploded view of a dispensing machine according to the invention;
- fig. 2 is a flow-sheet showing the general operation of a dispensing machine according to the invention;
- fig. 3 is a flow-sheet showing the operation mode "roll acceptance" of the dispensing machine according to the invention;
- fig. 4 is a flow-sheet showing the operation mode "delivering of photos" of the dispensing machine according to the invention;
- fig. 5 is a flow-sheet showing the operation mode "selling of items" of the dispensing machine according to the invention.

#### DESCRIPTION OF A FORM OF EMBODIMENT

In figure 1, reference sign 10 generally indicates a machine for automatically dispensing photographic products and the like according to the present invention.

Said machine 10 has a structural shape that is similar to the one of a *per se* known dispenser for renting videocassettes.

Thus, the dispensing machine according to the present invention comprises a metallic container 11, whose rear part is provided with a series of modular

hive-shaped containers 12, whereby each container 12 includes a series of seats 13; each seat is suitable for housing an item whose overall dimensions are compatible with those of the seat.

5 According to the present invention, said modular hive-shaped containers 12 form a magazine for storing developed photos.

Inside of each seat 13 the operator, in this case the person who manages the dispensing machine, inserts a  
10 suitable box containing the photos which have been printed starting from a roll of film introduced into the dispensing machine by the user according to the operating way that will later be described in detail.

In this context, it has to be stressed that spatial  
15 position of each seat of the hive-shaped containers is coded inside a suitable software that controls the operation of dispensing machine 10.

In the front part, dispensing machine 10 is provided with a suitable displaying device, e.g. a monitor 14, as  
20 well as with a keyboard 15 through which the user can input different data.

According to an alternative form of embodiment, monitor 14 is constituted by a so-called "touch-screen" monitor that allows a data input by the user through  
25 touching predetermined portions of said monitor; in this case keyboard 15 can be eliminated.

Yet, the front part of dispensing machine 10 comprises a door 16 that can be opened by means of the electronic control logics of the dispensing machine; the  
30 opening operation of door 16 (that is designed in order to prevent any accident), gives access to a chute (not



illustrated in the figure) through which the user can introduce one or more rolls of film to be developed into container 11.

Furthermore, the front part of container is provided  
5 with a second door 17 (that is designed in order to prevent any accident too) that can be opened by means of the electronic control logics of the dispensing machine; the opening operation of said second door 17 allows the user to withdraw a box (not illustrated in the figure)  
10 inside of which there are the printed photos.

Yet, the front part of the container is provided with a cashing device 18 which, depending on circumstances, may be constituted by a device for accepting coins and/or banknotes, or by a credit card  
15 reader; alternatively, a device for identifying the user can be constituted by a biometric sensor that associates, for instance, a given user to his fingerprint.

Furthermore, said device can be provided with a chute (not illustrated in the drawing) for the possible  
20 delivering of change money to the user, where the latter has paid a higher amount than the due one.

Cashing devices 18 of this kind are well known to the skilled technicians, and they do not require any further description.

25 According to the invention, dispensing machine 10 further comprises a device 19, whose outlet is placed on the front part of container 11, for issuing a card provided with an identifying code that can electronically be read by the control logics of dispensing machine 10.

30 Said card, that can physically be constituted by a magnetic card, a microchip card, or provided with a bar

code etc., is associated to a series of adhesive labels having a numeric code that is univocally associated to said card.

Once an adhesive label is affixed to the roll of  
5 film to be developed, the latter is then univocally associated to the card that is kept by the user for successively withdrawing the printed photos.

According to an advantageous form of embodiment of the invention device 19 is suitable for expelling a box  
10 that bears said identifying codes and that contains said card.

In this case, the user opens the box, withdraws the card, introduces the roll of film to be developed inside of said box and finally places said box on the chute  
15 behind door 16.

According to the invention, a suitable reader (not illustrated) verifies and validates then the introduction of the roll by means of the user.

According to a form of embodiment of the invention,  
20 front part of container 11 further comprises a conventional dispensing device 20, e.g. a system for delivering a series of objects placed on a rack, in order to sell some further accessories (for example new rolls of film, batteries, disposable cameras, etc.).T

25 The access to selling device 20 is always controlled by monitor 14, keyboard 15 and cashing device 17.

Inside container 11 there is a system for withdrawing the photographs which are present within  
seats 13 of hives 12.

30 This system, that is connected to the electronic control logics of dispensing machine 10, comprises a

carriage 21 movable along two perpendicular axes; said carriage supports a handling device 22 that is movable along a third axis Z which is perpendicular to X, Y axes.

Through this system, handling device 22 withdraws a  
5 given box placed inside a seat 13, and delivers it to the user in correspondence of door 17.

The overall operation of dispensing machine 10 according to the present invention is shown in the flow-sheets of figures 2 to 4 and can be described as follows.

10 The user who has to deliver on or more rolls of films to be developed introduces into the dispensing machine a minimum starting amount (i.e. 500 or 1000 Italian Lire, approx. EUR 0,25 to 0,50) and obtains from the machine a card provided with several adhesive labels  
15 (or, according to another form of embodiment, a box that is already coded for introducing the rolls therein and that contains the card for withdrawing the printed photos; the machine unlocks then door 16 and the gives access to the chute for inserting the roll.

20 The acceptance of the roll by dispensing machine 10 causes a signal to be issued by the electronic control logics of the dispensing machine.

Said signal is transmitted, through suitable means, (e.g. through a local area network or a modem) to a  
25 personal computer that is owned by the dispensing machine manager, who withdraws then the roll to be developed.

Once the development has been carried out and the photographs have been printed, the manager places the photos inside a suitable box and places the latter within  
30 a given seat 13 of the dispensing machine.

By means of his personal computer, the manager

informs the control logics of the dispensing machine about the spatial position of the container which, on its turn, bears the code associated to the user's card.

When the user wishes to withdraw his printed  
5 photographs, he will introduce his card within the dispensing machine and (see in particular fig. 2), if the photographs are ready, the dispensing machine displays on monitor 14 the cost of the service.

The subsequent introduction of the prompted amount  
10 causes the delivering procedure to be switched on (see fig. 4), whereby carriage 21 and handling device 22 are activated.

The latter picks up the box that is present inside of given seat 13 and places it in correspondence of door  
15 17 that is opened in order to allow the user to withdraw the box.

If the user wishes to purchase further products which are present inside of the selling dispenser 20, the procedure illustrated in fig. 5 is switched on;  
20 therefore, the introduction of a given amount allows a given door or drawer of dispenser 20 to be opened, thereby giving access to that product.

The invention has been described with reference to a particular form of embodiment thereof.

25 However, it is clear that the invention includes several variants falling within its spirit and scopes, in the range of the appended claims.

By way of example, the invention has been described with reference to a form of embodiment according to which  
30 the hive-shaped containers 12 provided with seats 13 for the printed photos are fixed inside container 11, and the

dispensing machine is provided of a system for moving and handling the boxes along three mutually perpendicular axes; however, according to a form of embodiment the hive-shaped containers are mounted on a rotating drum,  
5 and the handling device is only movable along Y and Z axes; in this case the movement along X axis is carried out by rotating said drum.

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>073/00</b>	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. <b>PCT/IT 00/ 00278</b>	International filing date (day/month/year) <b>05/07/2000</b>	(Earliest) Priority Date (day/month/year) <b>08/07/1999</b>
Applicant  <b>NORTECH ITALIA SRL</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 2 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the report**

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of Invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

1

☐ None of the figures.

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/IT 00/00278

A. CLASSIFICATION OF SUBJECT MATTER  
 IPC 7 G03D15/00 G07F11/62

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G03D G07F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, WPI Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	✓ WO 86 02758 A (NYEGAARD KIM D; NYEGAARD IB) 9 May 1986 (1986-05-09) claim 1; figures 1,2 ---	1-10
A	US 5 664 253 A (MEYERS MARK MARSHALL) 2 September 1997 (1997-09-02) abstract; figure 1 ---	1-10
A	EP 0 769 720 A (DIRECT) 23 April 1997 (1997-04-23) abstract; claim 1; figures 1,2 ---	1
A	✓ FR 2 724 739 A (KIS) 22 March 1996 (1996-03-22) claim 1; figure 1 -----	1



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

## \* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

7 September 2000

Date of mailing of the international search report

15/09/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
 NL - 2280 HV Rijswijk  
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 Fax: (+31-70) 340-3016

Authorized officer

Romeo, V

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/IT 00/00278

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 8602758	A	09-05-1986	EP 0197927 A	22-10-1986
US 5664253	A	02-09-1997	FR 2738647 A	14-03-1997
			GB 2305259 A,B	02-04-1997
			JP 9127673 A	16-05-1997
✓ EP 0769720	A	23-04-1997	WO 9714994 A	24-04-1997
FR 2724739	A	22-03-1996	NONE	



(19) World Intellectual Property Organization  
International Bureau



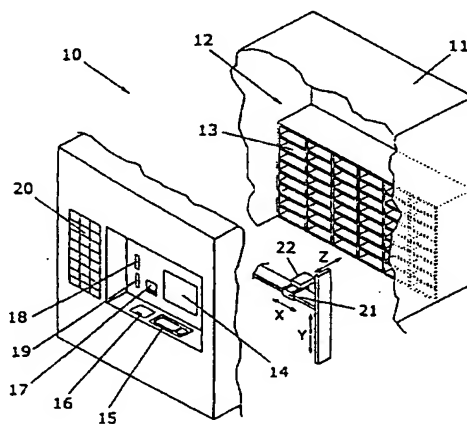
(43) International Publication Date  
18 January 2001 (18.01.2001)

PCT

(10) International Publication Number  
**WO 01/04704 A1**

- (51) International Patent Classification<sup>7</sup>: **G03D 15/00, G07F 11/62** (74) Agent: SANDRI, Sandro; Europatent - Euromark S.r.l., Via Locatelli, 20, I-37122 Verona (IT).
- (21) International Application Number: **PCT/IT00/00278** (81) Designated States (*national*): AE, AU, BG, BR, CA, CN, CZ, EE, HR, HU, ID, IL, IN, IS, JP, KR, LT, LV, MA, MX, NO, NZ, PL, RO, RU, SG, SI, SK, TR, UA, US, YU, ZA.
- (22) International Filing Date: **5 July 2000 (05.07.2000)**
- (25) Filing Language: **English** (84) Designated States (*regional*): European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).
- (26) Publication Language: **English**
- (30) Priority Data: **VR99A000057** **8 July 1999 (08.07.1999)** **IT** Published:  
— *With international search report.*
- (71) Applicant (*for all designated States except US*): **NORTECH ITALIA SRL [IT/IT]; Via Cefalonia, 20, I-37063 Isola Della Scala (IT).** *For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*
- (72) Inventor; and  
(75) Inventor/Applicant (*for US only*): **ZORZAN, Ivano [IT/IT]; Via S. Quasimodo, 32, I-37051 Bovolone (IT).**

(54) Title: **AUTOMATIC MACHINE FOR DISPENSING PHOTOGRAPHIC ITEMS AND THE LIKE**



(57) Abstract: An automatic machine (10) for dispensing photographic products and the like comprises a container (11) inside which there is at least a magazine constituted by one or more hive-shaped containers (12), each of said hive-shaped containers comprising a plurality of seats (13), a system for moving and handling (21, 22) the products which are housed within said seats (13) controlled by an electronic control logics, a data inputting (15) and displaying (14) device placed on the front part of said container, a device (17) for delivering outwards the products which have been withdrawn from said seats (13), as well as a cashing device (18). Said machine further comprises a device (16) for collecting at least a roll of film to be developed, as well as a device (17) suitable for delivering a coded carrier to the user, in particular a magnetic or microchip card or a card provided of bar codes, whereby a code to be associated to the roll to be introduced within said dispensing machine (10) is bound to said carrier.

WO 01/04704 A1

**AUTOMATIC MACHINE FOR DISPENSING PHOTOGRAPHIC ITEMS AND  
THE LIKE**

\* \* \* \* \*

5

The present invention relates to an automatic dispenser of photographic items and the like.

More particularly, the present invention relates to an automatic dispensing machine provided with means  
10 suitable for receiving from an user one or more rolls of film to be developed and printed, as well as with means for delivering the developed photographs, and with possible means for delivering to the user different kinds of photographic material, following to a payment that may  
15 be carried out in different ways.

The invention finds its main application in the field of manufacturing automatic dispensing machines.

**BACKGROUND ART**

Different types of automatic machines for dispensing  
20 articles of any kind are known in the art.

These machines are operated by means of tokens, banknotes, credit od debit cards, magnetic or electronic cards, etc.

These automatic dispensing machines, which can  
25 either be installed inside a room, or outside, are generally constituted by a metallic container inside of which there is a fixed or movable store having a plurality of seats or cavities, each housing a given article.

30 Each seat or cavity may normally be accessed to by opening suitable doors which are located on the front

part of said container.

The payment of a given amount (as mentioned, through coins, tokens, banknotes, electronic or magnetic cards etc.) allows an user to access to a given seat and to the  
5 article contained therein.

The articles contained within said automatic dispensing machines can be of the most different type, e.g. cigarettes, flowers, foodstuffs, drinks, videocassettes, audio or video records, sanitary items  
10 etc.

By way of example, european patent application No. EP-A-577121 describes an automatic device for dispensing audiovisual and digital record carriers.

Said device comprises a fixed magazine comprising a  
15 plurality of adjacent seats placed on respective rows and columns, each seat being suitable for housing a record carrier, at least an article handling unit for externally loading and unloading said articles through a slot, a device for reading an identifying label associated to  
20 each carrier, a device by means of which an user can select a given carrier, as well as an automatic payment means that, once activated, allows a carrier to be withdrawn from the device.

Said handling unit comprises a pair of carriages  
25 which are parallel to each other and movable along vertical guides, as well as a slider that is movable along a second horizontal guide connected to said carriages; a blocking element for handling the carriers is rigidly fixed to said slider.

30 Said blocking element comprises movable jaws and a device for automatically modifying the distance between

the jaws along a further guide.

The opening and closing operation of the doors, thus the access to the seats containing the carriers, is controlled by a suitable computer, that is on its turn  
5 connected to a device for identifying the user (i.e. through a magnetic card) and for carrying out the payment (i.e. through banknotes or credit card).

Other automatic machines with advance payment functions known in the art include a camera and a device  
10 for automatically developing and printing the photos snapped by said camera.

Following to the payment of a given amount, the user is photographed and, after some minutes, he/she receives from the machine one or more prints of the snapped photo.

15 The applicant is not aware of automatic dispensing machines which were able to withdraw from an user a roll of photos to be developed and deliver to said user, after a given priod of time, printed photos according to sizes and number of copies which are selected by the user.

## 20 DESCRIPTION OF THE INVENTION

The present invention aims to provide a new kind of automatic dispensing machine that allows an user to directly deliver a roll of film to be developed and to successively withdraw printed photos in a size and in a  
25 number of copies that is determined by said user.

This is achieved by means of an automatic dispensing machine having the features disclosed in the main claim.

The dependent claims outline particularly advantageous forms of embodiment of the dispensing  
30 machine according to the invention.

The automatic dispensing machine according to the

present invention comprises a container housing a series of seats which are suitable for receiving rolls of film to be developed, as well as at least a door, that is placed on the front part of the dispensing machine, through which an user can introduce one or more rolls to be developed and printed in the machine.

According to the invention, the dispensing machine comprises means suitable for univocally identifying the roll or rolls inserted in the machine by the user, means for associating said roll or rolls to one or more of said seats, as well as means for displacing said roll or rolls towards its/their associated seat or seats.

Furthermore, the dispensing machine comprises data computing, storing and displaying means allowing a skilled operator who withdraws the rolls from predetermined seats, to reintroduce the printed photos within the same seats in order to allow the user who had required the developing and printing service to successively withdraw the photos.

According to a particularly advantageous form of embodiment of the invention, the automatic dispensing machine comprises a suitable control software, a data inputting keyboard and a suitable display by means of which the user can input a series of possibly pre-selected requests, such as for instance the number of copies to be printed and/or their size.

Furthermore, the dispensing machine can be provided with means both for issuing a card including the user's identifying data, and for reading said card if it is already available.

According to a further advantageous form of

embodiment of the invention, the automatic dispensing machine comprises a magazine housing a series of items which can be selected by the user, as well as means for dispensing said items to the user after a given amount  
5 has been paid; for example, said items can be constituted by various material such as new rolls of film, audio or video cassettes, batteries, disposable cameras, etc.

The latter form of embodiment appears to be extremely advantageous from the point of view of the  
10 user's convenience, since the machine can in practice dispense all the services of a photograph's shop at any time, in particular beyond the normal shop closing time.

This kind of dispensing machine can be installed anywhere, thereby allowing a series of selling points to  
15 be created and widening the selling network of a given commercial business.

#### ILLUSTRATION OF DRAWINGS

Other features and advantages of the invention will become apparent by reading the following description of a  
20 form of embodiment of the invention, given as a non-limiting example, with the help of the drawings illustrated in the attached sheets, in which:

- fig. 1 shows a schematical perspective exploded view of a dispensing machine according to the invention;
- 25 - fig. 2 is a flow-sheet showing the general operation of a dispensing machine according to the invention;
- fig. 3 is a flow-sheet showing the operation mode "roll acceptance" of the dispensing machine according to the invention;
- 30 - fig. 4 is a flow-sheet showing the operation mode "delivering of photos" of the dispensing machine

according to the invention;

- fig. 5 is a flow-sheet showing the operation mode "selling of items" of the dispensing machine according to the invention.

5                   **DESCRIPTION OF A FORM OF EMBODIMENT**

In figure 1, reference sign 10 generally indicates a machine for automatically dispensing photographic products and the like according to the present invention.

Said machine 10 has a structural shape that is  
10 similar to the one of a *per se* known dispenser for renting videocassettes.

Thus, the dispensing machine according to the present invention comprises a metallic container 11, whose rear part is provided with a series of modular  
15 hive-shaped containers 12, whereby each container 12 includes a series of seats 13; each seat is suitable for housing an item whose overall dimensions are compatible with those of the seat.

According to the present invention, said modular  
20 hive-shaped containers 12 form a magazine for storing developed photos.

Inside of each seat 13 the operator, in this case the person who manages the dispensing machine, inserts a suitable box containing the photos which have been  
25 printed starting from a roll of film introduced into the dispensing machine by the user according to the operating way that will later be described in detail.

In this context, it has to be stressed that spatial position of each seat of the hive-shaped containers is  
30 coded inside a suitable software that controls the operation of dispensing machine 10.

In the front part, dispensing machine 10 is provided with a suitable displaying device, e.g. a monitor 14, as well as with a keyboard 15 through which the user can input different data.

5       According to an alternative form of embodiment, monitor 14 is constituted by a so-called "touch-screen" monitor that allows a data input by the user through touching predetermined portions of said monitor; in this case keyboard 15 can be eliminated.

10       Yet, the front part of dispensing machine 10 comprises a door 16 that can be opened by means of the electronic control logics of the dispensing machine; the opening operation of door 16 (that is designed in order to prevent any accident), gives access to a chute (not  
15       illustrated in the figure) through which the user can introduce one or more rolls of film to be developed into container 11.

      Furthermore, the front part of container is provided with a second door 17 (that is designed in order to  
20       prevent any accident too) that can be opened by means of the electronic control logics of the dispensing machine; the opening operation of said second door 17 allows the user to withdraw a box (not illustrated in the figure) inside of which there are the printed photos.

25       Yet, the front part of the container is provided with a cashing device 18 which, depending on circumstances, may be constituted by a device for accepting coins and/or banknotes, or by a credit card reader; alternatively, a device for identifying the user  
30       can be constituted by a biometric sensor that associates, for instance, a given user to his fingerprint.



Furthermore, said device can be provided with a chute (not illustrated in the drawing) for the possible delivering of change money to the user, where the latter has paid a higher amount than the due one.

5       Cashing devices 18 of this kind are well known to the skilled technicians, and they do not require any further description.

According to the invention, dispensing machine 10 further comprises a device 19, whose outlet is placed on the front part of container 11, for issuing a card provided with an identifying code that can electronically be read by the control logics of dispensing machine 10.

Said card, that can physically be constituted by a magnetic card, a microchip card, or provided with a bar code etc., is associated to a series of adhesive labels having a numeric code that is univocally associated to said card.

Once an adhesive label is affixed to the roll of film to be developed, the latter is then univocally associated to the card that is kept by the user for successively withdrawing the printed photos.

According to an advantageous form of embodiment of the invention device 19 is suitable for expelling a box that bears said identifying codes and that contains said card.

In this case, the user opens the box, withdraws the card, introduces the roll of film to be developed inside of said box and finally places said box on the chute behind door 16.

30       According to the invention, a suitable reader (not illustrated) verifies and validates then the introduction

of the roll by means of the user.

According to a form of embodiment of the invention, front part of container 11 further comprises a conventional dispensing device 20, e.g. a system for  
5 delivering a series of objects placed on a rack, in order to sell some further accessories (for example new rolls of film, batteries, disposable cameras, etc.).T

The access to selling device 20 is always controlled by monitor 14, keyboard 15 and cashing device 17.

10 Inside container 11 there is a system for withdrawing the photographs which are present within seats 13 of hives 12.

This system, that is connected to the electronic control logics of dispensing machine 10, comprises a  
15 carriage 21 movable along two perpendicular axes; said carriage supports a handling device 22 that is movable along a third axis Z which is perpendicular to X, Y axes.

Through this system, handling device 22 withdraws a given box placed inside a seat 13, and delivers it to the  
20 user in correspondence of door 17.

The overall operation of dispensing machine 10 according to the present invention is shown in the flowsheets of figures 2 to 4 and can be described as follows.

25 The user who has to deliver on or more rolls of films to be developed introduces into the dispensing machine a minimum starting amount(i.e. 500 or 1000 italian Lire, approx. EUR 0,25 to 0,50) and obtains from the machine a card provided with several adhesive labels  
30 (or, according to another form of embodiment, a box that is already coded for introducing the rolls therein and

that contains the card for withdrawing the printed photos; the machine unlocks then door 16 and the gives access to the chute for inserting the roll.

The acceptance of the roll by dispensing machine 10  
5 causes a signal to be issued by the electronic control logics of the dispensing machine.

Said signal is transmitted, through suitable means, (e.g. through a local area network or a modem) to a personal computer that is owned by the dispensing machine  
10 manager, who withdraws then the roll to be developed.

Once the development has been carried out and the photographs have been printed, the manager places the photos inside a suitable box and places the latter within a given seat 13 of the dispensing machine.

15 By means of his personal computer, the manager informs the control logics of the dispensing machine about the spatial position of the container which, on its turn, bears the code associated to the user's card.

When the user wishes to withdraw his printed  
20 photographs, he will introduce his card within the dispensing machine and (see in particular fig. 2), if the photographs are ready, the dispensing machine displays on monitor 14 the cost of the service.

The subsequent introduction of the prompted amount  
25 causes the delivering procedure to be switched on (see fig. 4), whereby carriage 21 and handling device 22 are activated.

The latter picks up the box that is present inside of given seat 13 and places it in correspondance of door  
30 17 that is opened in order to allow the user to withdraw the box.

If the user wishes to purchase further products which are present inside of the selling dispenser 20, the procedure illustrated in fig. 5 is switched on; therefore, the introduction of a given amount allows a  
5 given door or drawer of dispenser 20 to be opened, thereby giving access to that product.

The invention has been described with reference to a particular form of embodiment thereof.

However, it is clear that the invention includes  
10 several variants falling within its spirit and scopes, in the range of the appended claims.

By way of example, the invention has been described with reference to a form of embodiment according to which the hive-shaped containers 12 provided with seats 13 for  
15 the printed photos are fixed inside container 11, and the dispensing machine is provided of a system for moving and handling the boxes along three mutually perpendicular axes; however, according to a form of embodiment the  
hive-shaped containers are mounted on a rotating drum,  
20 and the handling device is only movable along Y and Z axes; in this case the movement along X axis is carried out by rotating said drum.

## CLAIMS

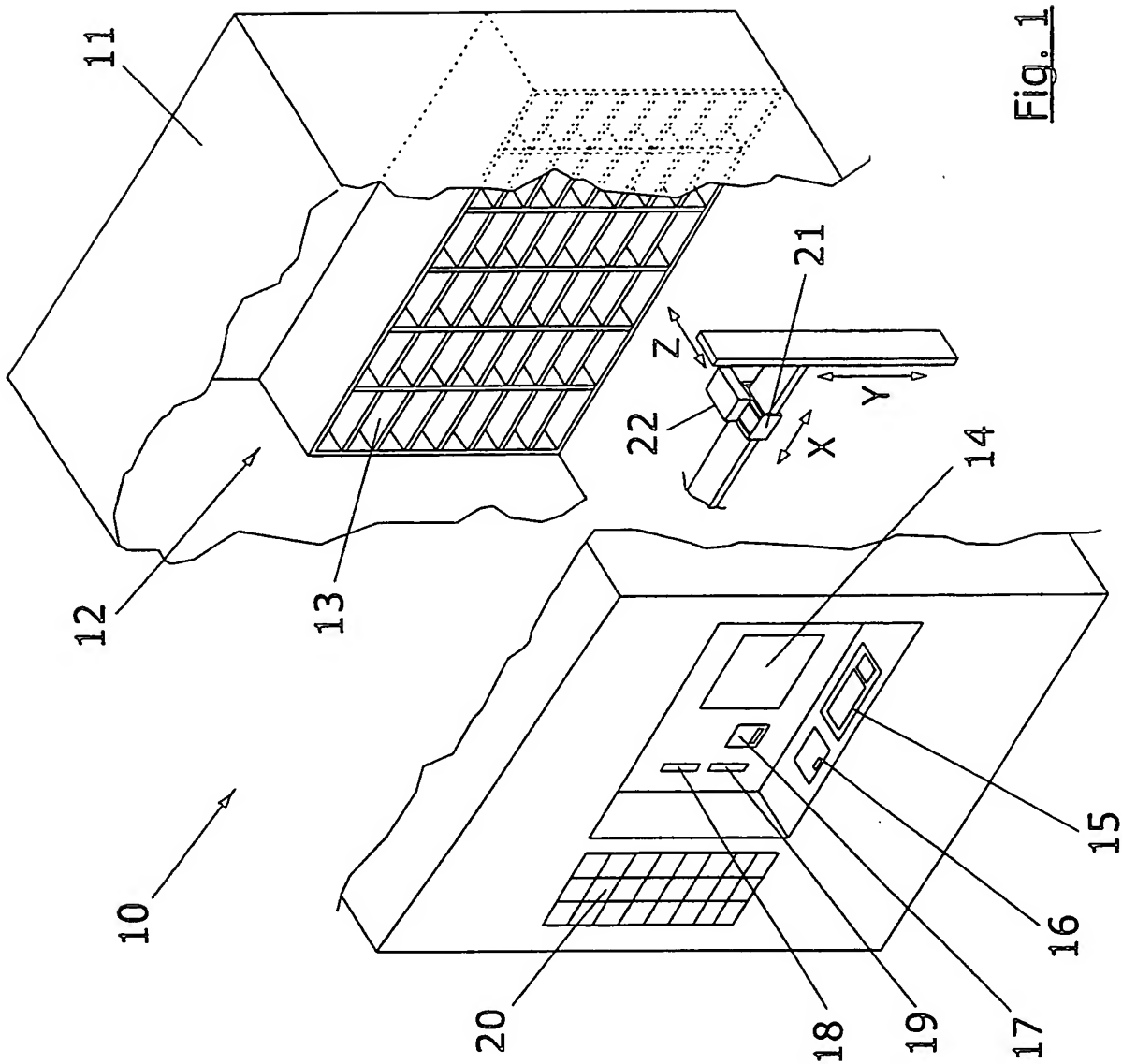
1. Automatic machine (10) for dispensing photographic products and the like, comprising a container (11)  
5 inside which there is at least a magazine constituted by one or more hive-shaped containers (12), each of said hive-shaped containers comprising a plurality of seats (13), a system for moving and handling (21, 22) the products which are housed within said seats  
10 (13) controlled by an electronic control logics, a data inputting (15) and displaying (14) device placed on the front part of said container, a device (17) for delivering outwards the products which have been withdrawn from said seats (13), as well as a  
15 cashing device (18), characterised in that it further comprises a device (16) for collecting at least a roll of film to be developed, as well as a device (17) suitable for delivering a coded carrier to the user, in particular a magnetic or microchip  
20 card or a card provided of bar codes, whereby a code to be associated to the roll to be introduced within said dispensing machine (10) is bound to said carrier.
2. Dispensing machine (10) according to claim 1,  
25 characterised in that it further comprises a device for reading and storing data which are associated to the user, in particular a magnetic or microchip card reader, or a biometric sensor.
3. Dispensing machine (10) according to anyone of the  
30 preceding claims, characterised in that it further comprises a second dispenser (20) for selling

products, e.g. new rolls of film, disposable cameras, batteries, whose operation is controlled by the electronic control logics of said dispensing machine (10).

- 5    4.    Dispensing machine (10) according to anyone of the preceding claims, characterised in that it further comprises a device for verifying and validating the roll provided with a code that is introduced within said dispensing machine (10).
- 10   5.    Dispensing machine (10) according to anyone of the preceding claims, characterised in that it comprises a series of boxes suitable for containing printed photographs, each box being placed inside of a predetermined seat (13).
- 15   6.    Dispensing machine (10) according to anyone of the preceding claims, characterised in that it comprises memory means for storing the spatial position and the state, either empty or full, of each seat (13), as well as means for associating the code carried by  
20   said coded carrier to a given box containing printed photographs.
- 25   7.    Dispensing machine (10) according to anyone of the preceding claims, characterised in that it further comprises means for transmitting to a remote  
location the data relative to the rolls of film to  
be developed introduced within the dispensing  
machine..
- 30   8.    Dispensing machine (10) according to anyone of the preceding claims, characterised in that it further  
comprises means for receiving from a remote location  
and for storing the data relative to the position of

the printed photographs inside of the hive-shaped containers (12), as well as to the amounts to be paid for the rendered services.

- 5       9.   Dispensing machine (10) according to anyone of the preceding claims, characterised in that said magazine is fixed inside of said container (11), and in that said moving and handling system (21, 22) comprises a device that is movable along three mutually perpendicular axes (X, Y, Z).
- 10   10.   Dispensing machine (10) according to anyone of claims 1 to 7, characterised in that said magazine is constituted by a drum rotating about a vertical axis, whereby the side surface of said drum is provided with said seats (13), said moving and
- 15       handling device (21, 22) being movable along two (Y, Z) mutually perpendicular axes.





2/5

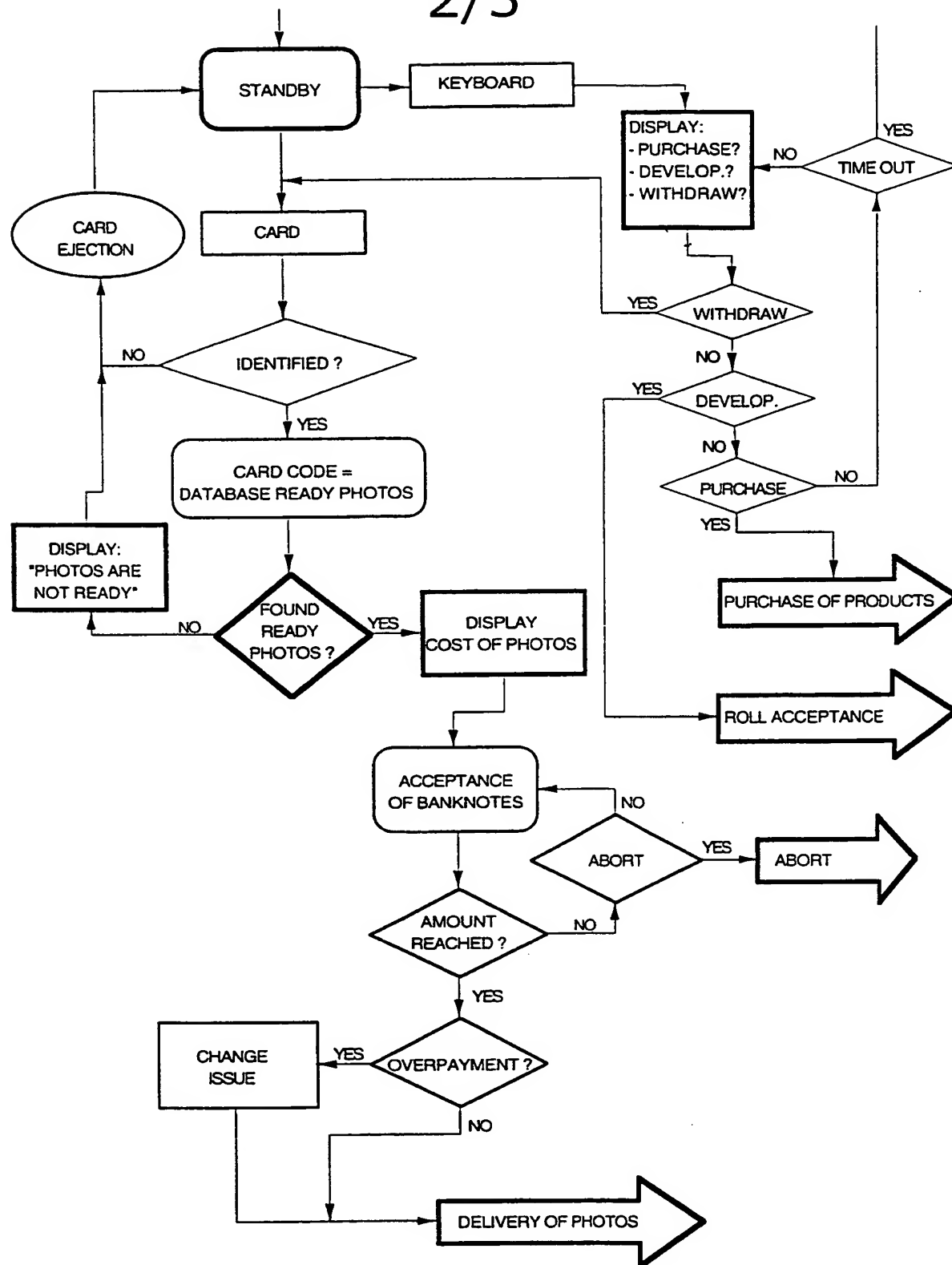


Fig. 2

3/5

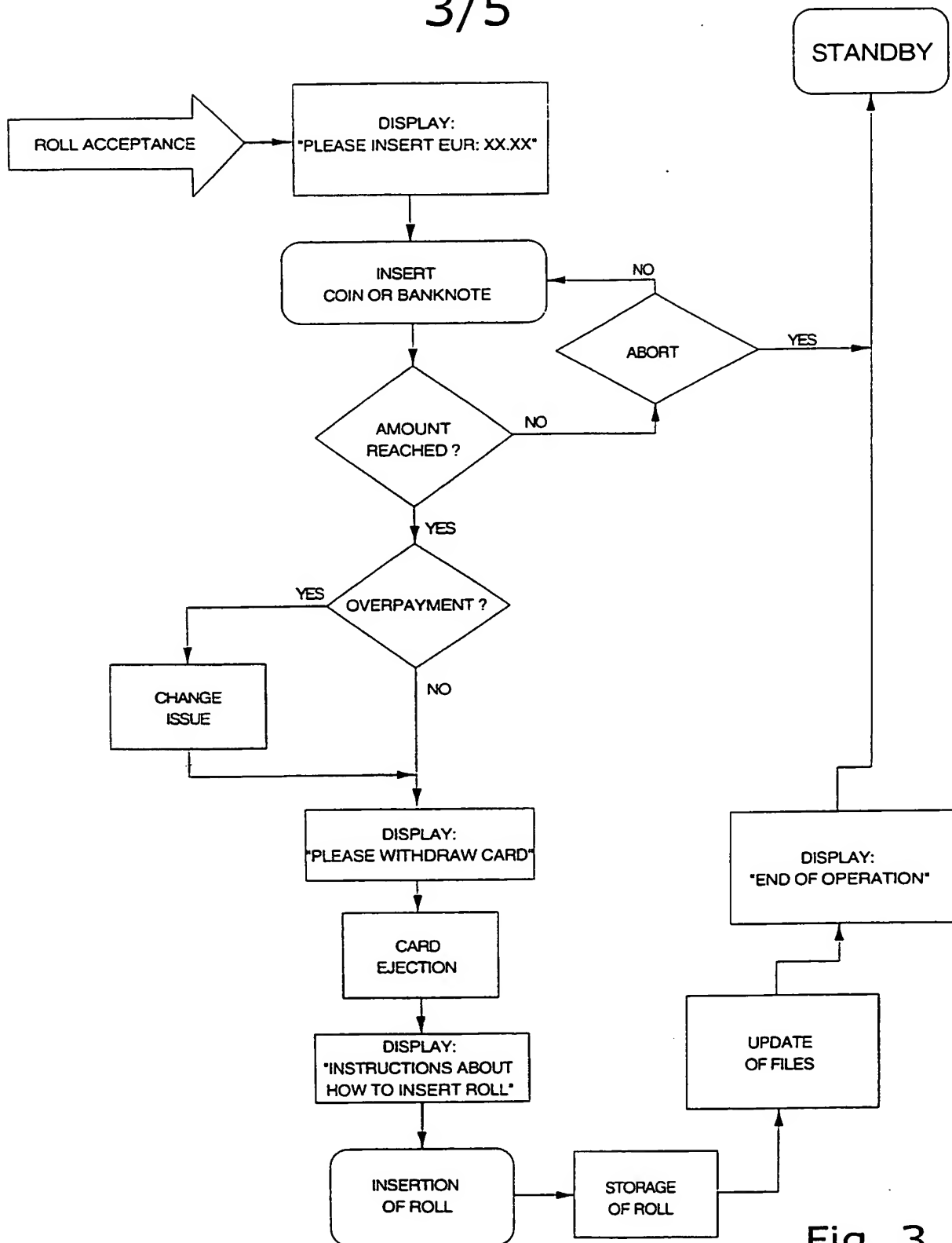
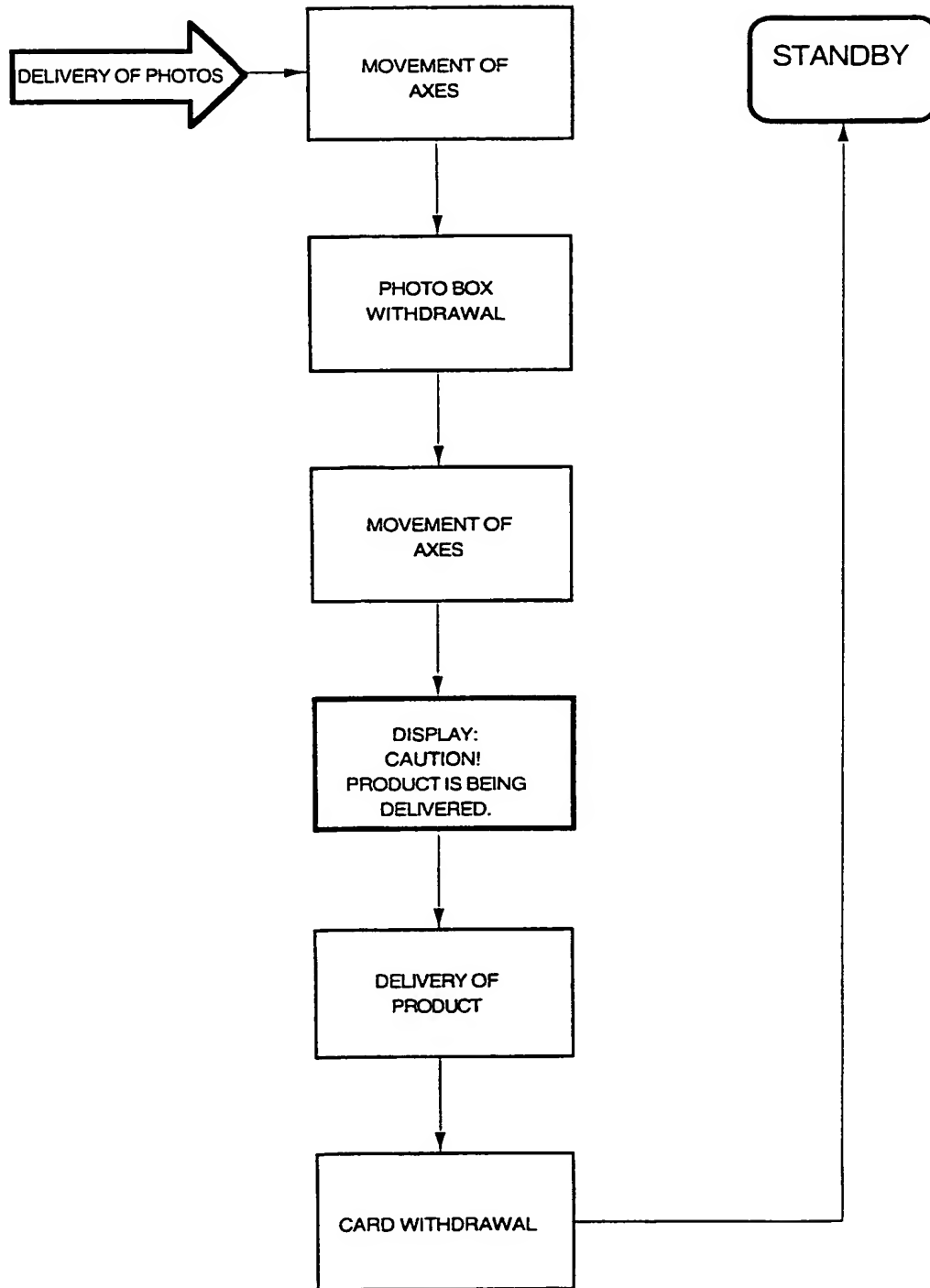


Fig. 3

4/5

Fig. 4

5/5

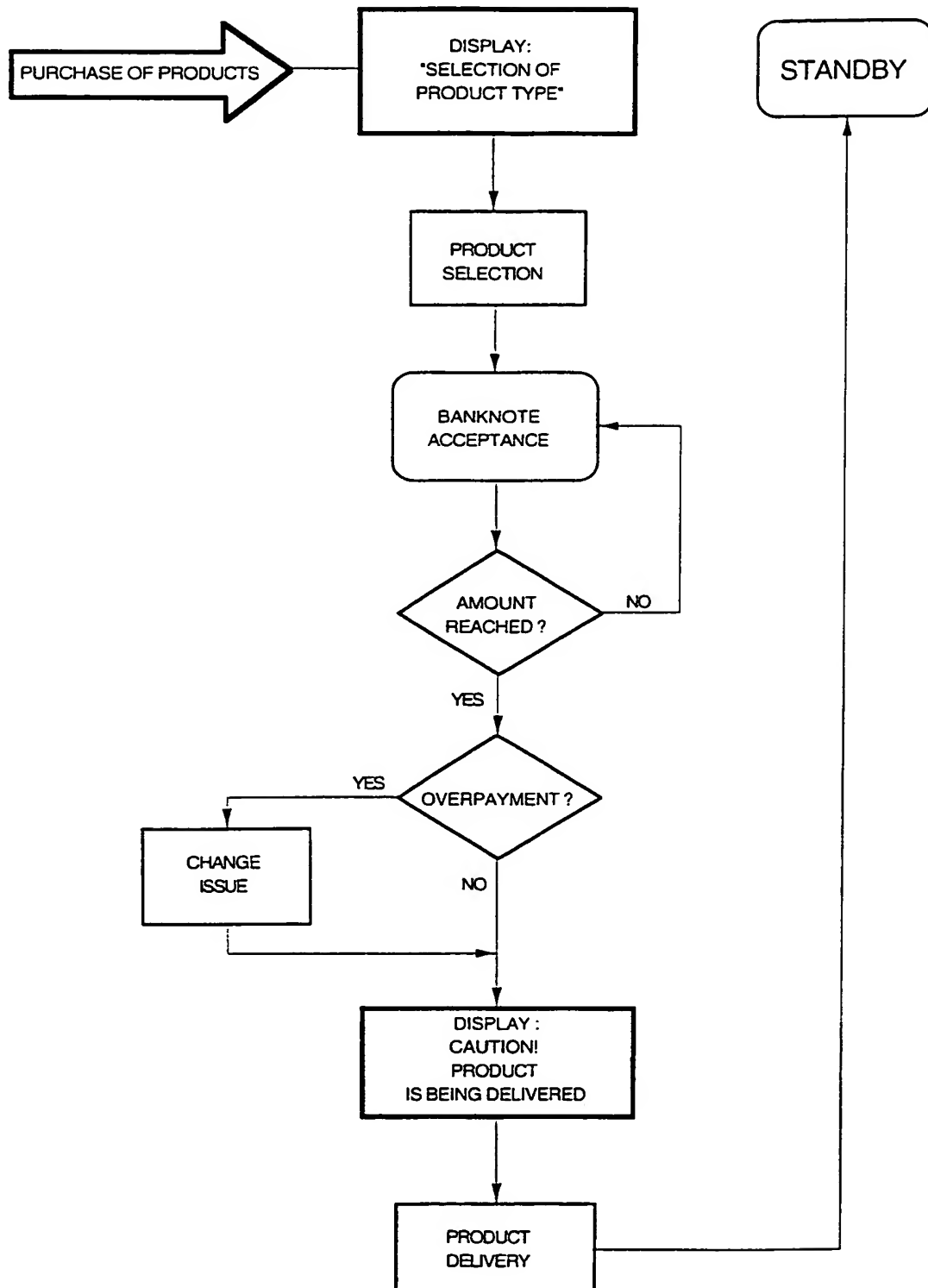


Fig. 5

# INTERNATIONAL SEARCH REPORT

International Application No.

PCT/IT 00/00278

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G03D15/00 G07F11/62

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G03D G07F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, WPI Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 86 02758 A (NYEGAARD KIM D;NYEGAARD IB) 9 May 1986 (1986-05-09) claim 1; figures 1,2	1-10
A	US 5 664 253 A (MEYERS MARK MARSHALL) 2 September 1997 (1997-09-02) abstract; figure 1	1-10
A	EP 0 769 720 A (DIRECT) 23 April 1997 (1997-04-23) abstract; claim 1; figures 1,2	1
A	FR 2 724 739 A (KIS) 22 March 1996 (1996-03-22) claim 1; figure 1	1

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*G\* document member of the same patent family

Date of the actual completion of the international search

7 September 2000

Date of mailing of the international search report

15/09/2000

Name and mailing address of the ISA

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Fax: (+31-70) 340-3016

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Romeo, V

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/IT 00/00278

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
WO 8602758	A	09-05-1986	EP	0197927 A	22-10-1986
US 5664253	A	02-09-1997	FR	2738647 A	14-03-1997
			GB	2305259 A,B	02-04-1997
			JP	9127673 A	16-05-1997
EP 0769720	A	23-04-1997	WO	9714994 A	24-04-1997
FR 2724739	A	22-03-1996	NONE		